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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/864,093	05/21/2001	Gerald R. Clark	70651	1812
22242	7590	06/16/2006		
FITCH EVEN TABIN AND FLANNERY 120 SOUTH LA SALLE STREET SUITE 1600 CHICAGO, IL 60603-3406			EXAMINER PHAN, HANH	
			ART UNIT 2613	PAPER NUMBER

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/864,093

Applicant(s)

CLARK ET AL.

Examiner

Hanh Phan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 09 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,5-12,16-22,24-29,31-35,38-43 and 46-50 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9 and 19 is/are allowed.
- 6) ☒ Claim(s) 1, 5, 6, 8, 10, 12, 16, 18, 20, 22, 24, 28, 29, 31, 34, 35, 38, 42, 43, 46 and 50 is/are rejected.
- 7) ☒ Claim(s) 7,11,17,21,25-27,32,33,39-41 and 47-49 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This Office Action is responsive to the Amendment filed on 11/09/2005.
2. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margalit et al (US Patent No. 6,944,403) in view of Komine (US Patent No. 5,400,173) OR Fukumoto (US Patent No. 6,344,920).

Regarding claims 1 and 12, referring to Figures 1-4, 7 and 8, Margalit discloses a method of communicating optical signals over a free-space link, comprising the steps of:

receiving a first optical signal having a fiber interface fundamental wavelength from a first single mode optical fiber (Figs. 1 and 7, col. 4, lines 1-67, col. 5, lines 1-27 and lines 55-67 and col. 6, lines 1-16);

directing the first optical signal over the free-space link (Figs. 1 and 7, col. 4, lines 1-67, col. 5, lines 1-27 and lines 55-67 and col. 6, lines 1-16);

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receiving a second optical signal having the free-space fundamental wavelength from the free-space link (Figs. 1 and 7, col. 4, lines 1-67, col. 5, lines 1-27 and lines 55-67 and col. 6, lines 1-16); and

directing the second optical signal into a second single mode optical fiber (Figs. 1 and 7, col. 4, lines 1-67, col. 5, lines 1-27 and lines 55-67 and col. 6, lines 1-16).

Margalit differs from claims 1 and 12 in that he fails to teach converting the fiber interface fundamental wavelength of the first optical signal to a free-space fundamental wavelength with a transmit wavelength transformer wherein the converting the fiber interface fundamental wavelength of the first optical signal to a free-space fundamental wavelength is performed all-optically without using electro-optical conversion and converting the free-space fundamental wavelength of the second optical signal to a fiber interface fundamental wavelength with a receive wavelength transformer and wherein the converting the free-space fundamental wavelength of the second optical signal to a fiber interface fundamental wavelength is performed all-optically without using electro-optical conversion. However, Komine in US Patent No. 5,400,173 teaches converting the fiber interface fundamental wavelength of the first optical signal to a free-space fundamental wavelength with a transmit wavelength transformer and wherein the converting the fiber interface fundamental wavelength of the first optical signal to a free-space fundamental wavelength is performed all-optically without using electro-optical conversion (Figure 1, col. 3, lines 50-67, col. 4, lines 1-67 and col. 5, lines 1-44) **OR** Fukumoto in US Patent No. 6,344,920 converting the fiber interface fundamental wavelength of the first optical signal to a free-space fundamental wavelength with a

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transmit wavelength transformer and wherein the converting the fiber interface fundamental wavelength of the first optical signal to a free-space fundamental wavelength is performed all-optically without using electro-optical conversion (Figures 1-7, col. 2, lines 55-67, col. 3, lines 1-67 and col. 4, lines 1-5). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the converting the fiber interface fundamental wavelength of the first optical signal to a free-space fundamental wavelength is performed all-optically without using electro-optical conversion as taught by Komine **OR** Fukumoto in the system of Margalit. One of ordinary skill in the art would have been motivated to do this since Komine suggests in column 3, lines 50-67, col. 4, lines 1-67 and col. 5, lines 1-44 **OR** Fukumoto suggests in column 2, lines 55-67, col. 3, lines 1-67 and col. 4, lines 1-5 that using such the converting the fiber interface fundamental wavelength of the first optical signal to a free-space fundamental wavelength is performed all-optically without using electro-optical conversion have advantage of allowing providing a mid-infrared wavelength using for communicating data over a free space optical link to overcome the atmospheric conditions as fog and reducing space, weight and cost of the whole of the device.

5. Claims 5, 6, 10, 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margalit et al (US Patent No. 6,944,403) in view of Komine (US Patent No. 5,400,173) **OR** Fukumoto (US Patent No. 6,344,920) and further in view of Cheng et al (US Patent No. 6,577,421).

Regarding claims 5, 16 and 20, Margalit as modified by Komine OR Fukumoto teaches all the aspects of the claimed invention except fails to teach sampling a portion of the second optical signal having the free-space fundamental wavelength and using the sampled portion of the second optical signal in an offline path to determine a new value for the free-space fundamental wavelength. However, Cheng in US Patent No. 6,577,421 teaches sampling a portion of the second optical signal having the free-space fundamental wavelength and using the sampled portion of the second optical signal in an offline path to determine a new value for the free-space fundamental wavelength (Figure 2, col. 6, lines 12-67, col. 7, lines 1-67 and col. 8, lines 1-59). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the sampling a portion of the second optical signal having the free-space fundamental wavelength and using the sampled portion of the second optical signal in an offline path to determine a new value for the free-space fundamental wavelength as taught by Cheng in the system of Margalit modified by Komine OR Fukumoto. One of ordinary skill in the art would have been motivated to do this since Cheng suggests in column 6, lines 12-67, col. 7, lines 1-67 and col. 8, lines 1-59 that using such the sampling a portion of the second optical signal having the free-space fundamental wavelength and using the sampled portion of the second optical signal in an offline path to determine a new value for the free-space fundamental wavelength have advantage of allowing providing an optical communication system with a precise alignment system and increasing the signal to noise ration and reducing the error signals.

Regarding claims 6 and 10, the combination of Margalit, Komine OR Fukumoto, and Cheng teaches comparing a detected offline performance with a detected online performance (Figure 2 of Cheng, col. 6, lines 12-67, col. 7, lines 1-67 and col. 8, lines 1-59).

6. Claims 8 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margalit et al (US Patent No. 6,944,403) in view of Komine (US Patent No. 5,400,173) OR Fukumoto (US Patent No. 6,344,920) and further in view of Kumar et al (Pub No. US 2002/0075542).

Regarding claims 8 and 18, Margalit as modified by Komine OR Fukumoto differs from claims 8 and 18 in that he fails to teach receiving an indication of a new value for the free-space fundamental wavelength via an out-of-band communications channel. However, Kumar teaches receiving an indication of a new value for the free-space fundamental wavelength via an out-of-band communications channel (Fig. 8, paragraphs [0053] and [0054]). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the receiving an indication of a new value for the free-space fundamental wavelength via an out-of-band communications channel as taught by Kumar in the system of Margalit modified by Komine OR Fukumoto. One of ordinary skill in the art would have been motivated to do this since Kumar suggests in paragraphs [0053] and [0054] that using such the receiving an indication of a new value for the free-space fundamental wavelength via an

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out-of-band communications channel have advantage of allowing changing the capacity of the wireless link in response to changing environmental conditions.

7. Claims 22, 24, 28, 29, 31, 34, 35, 38, 42, 43, 46 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable Margalit et al (US Patent No. 6,944,403) in view of Komine (US Patent No. 5,400,173) **OR** Fukumoto (US Patent No. 6,344,920) and further in view of Ransford et al (US Patent No. 6,532,087).

Regarding claims 22, 29, 35 and 43, Margalit as modified by Komine OR Fukumoto teaches all the aspects of the claimed invention except fails to teach attenuating the first optical signal with a variable optical attenuator that is optically coupled to the multi-wavelength optical amplifier. However, Ransford in US Patent No. 6,532,087 teaches amplifying an optical signal with a multi-wavelength optical amplifier (i.e., optical amplifier 20, Fig. 2) connected in-line with an single mode optical fiber and attenuating the optical signal with a variable optical attenuator (i.e., variable optical attenuator 10, Fig. 2) that is optically coupled to the multi-wavelength optical amplifier (col. 5, lines 57-67). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to incorporate the amplifying an optical signal with a multi-wavelength optical amplifier connected in-line with an single mode optical fiber and attenuating the optical signal with a variable optical attenuator that is optically coupled to the multi-wavelength optical amplifier as taught by Ransford in the system of Margalit modified by Komine OR Fukumoto. One of ordinary skill in the art would have been motivated to do this since Ransford suggests in column 5, lines 57-67 that using

such the amplifying an optical signal with a multi-wavelength optical amplifier connected in-line with an single mode optical fiber and attenuating the optical signal with a variable optical attenuator that is optically coupled to the multi-wavelength optical amplifier have advantage of allowing increasing the power level of the signal and keeping the power level of signal at a desired power level.

Regarding claims 24, 31, 38 and 46, the combination of Margalit, Komine OR Fukumoto, and Ransford teaches reconfiguring the transmit wavelength transformer to convert the fiber interface fundamental wavelength of the first optical signal to a new value for the free-space fundamental wavelength (see Figure 1 of Komine, col. 3, lines 50-67, col. 4, lines 1-67 and col. 5, lines 1-44 OR Figures 1-7 of Fukumoto, col. 2, lines 55-67, col. 3, lines 1-67 and col. 4, lines 1-5).

Regarding claims 28, 34, 42 and 50, the combination of Margalit, Komine OR Fukumoto, and Ransford teaches controlling a power gain of the multi-wavelength optical amplifier and a dynamic attenuation provided by the variable optical attenuator (Fig. 2 of Ransford, col. 8, lines 16-26).

***Allowable Subject Matter***

8. Claims 7, 11, 17, 21, 25-27, 32, 33, 39-41 and 47-49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Claims 9 and 19 are allowed.

***Response to Arguments***


10. Applicant's arguments with respect to claims 1, 5-12, 16-22, 24-29, 31-35, 38-43 and 46-50 have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hanh Phan whose telephone number is (571)272-3035.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan, can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-4700.

  
**HANH PHAN**  
**PRIMARY EXAMINER**